



UNITED STATES PATENT AND TRADEMARK OFFICE

en

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,072	11/21/2003	Mali Gong	62888.00001	2272

30256 7590 02/15/2007
SQUIRE, SANDERS & DEMPSEY L.L.P
PATENT DEPARTMENT
ONE MARITIME PLAZA, SUITE 300
SAN FRANCISCO, CA 94111-3492

EXAMINER

GOLUB, MARCIA A

ART UNIT	PAPER NUMBER
----------	--------------

2828

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/719,072	Applicant(s) GONG ET AL.	
	Examiner Marcia A. Golub	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 7 and 9-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7 and 9-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1 and 6 have been considered but they are not persuasive.

Regarding applicant's argument that the laser slab does not have planar outer surfaces but has curved surfaces: the examiner points out that the laser slab does have planar surfaces, for example 34 along with curved surfaces 18, and therefore meets the limitations of the claim.

Regarding applicant's argument that the reference does not disclose the limitations of claim 13, the examiner points out that: 1) the rejection of the claim based on Zhang did not chance since the first office action, yet the applicant did not contest the rejection in the first two responses, 2) the reference does disclose the limitations presented in the claim, since the reference uses the lenses the lens ducts to focus the light into the slab laser in addition to using the lenses in different embodiments pointed out by the applicant.

Claim Objections

Claim 6 is objected to because of the following informalities: "outers surface" should be replaced with "outer surfaces". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-7, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Byren et al. (5,974,061) hereinafter '061.

Figs 1-3 of '061 discloses a laser gain module comprising:

1, 6. "a laser slab [10] including an undoped circumambient portion [14], one of more doped central portions [16] and corner faces [34], and wherein outer surfaces [34] of the slab are planar;

and one or more pump source [26] providing a pump light [32], each pump

Art Unit: 2828

source consisting of a high power diode array and its coupling system [28,30];

wherein said pump light [32] from said one or more pump sources [26] directly incident into said laser slab [10] through prior cut slab corner faces [34] of said laser slab without restriction to the incident angle or the polarization state of the pump light (4/29-32), firstly pass said undoped circumambient portion, secondly pass said doped central portion, thirdly pass said undoped circumambient portion again, and fourthly take inner reflection at the surface of said undoped circumambient portion, and by repeating these steps, achieve multi-pass absorption, and substantially absorbed by the said doped central portion during propagation (4/1-7);

and wherein said laser slab outputs an amplified laser beam. (inherent to the structure)

2, 10. wherein corner faces of said laser slab are coated for high transmission for the wavelength of the pump light (3/63-67), and lateral faces of said slab are coated for high reflection for the wavelength of the pump light (3/40-41).

3. wherein a laser light propagates inside the laser slab [10] in a zigzag optical path (Fig 4).

4. wherein the step of absorbing achieves a high absorption efficiency through multi-pass absorption of pump light inside said laser slab (4/10-11).

7. wherein the number of said corner faces is four (Fig 3).

9. wherein a cross section of said central portion [16] is square (Fig 2)."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over '061 as applied to claim 6 above, and further in view of Tullock et al. (6,134,258) hereinafter '258.

Art Unit: 2828

Figs 1-3 of '061 disclose a laser gain module as described above but do not disclose:

11. "wherein the input beam and the output beam are located at one same side of said laser slab, said input beam and said output beam forming an angle with each other.
12. wherein two mirrors are placed at another side of the said laser slab symmetrically with respect of said input beam and said output beam."

However, Fig 9b of '258 discloses such configuration. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of '258 into the device of '061 by placing mirrors on the other side of the gain medium symmetrically with respect to input and output beam for at least the purpose of increasing the amplification of the laser beam by passing it through the gain medium twice.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over '061 as applied to claim 6 above, and further in view of Zhang (2002/0105997) hereinafter '997.

Figs 1-3 of '061 disclose a laser gain module as described above where the pump light is focused into the gain medium by two lenses but do not disclose:

13. "wherein said coupling system including two cylindrical lenses and a lens duct, said two cylindrical lenses being placed between the diode array and the lens duct, generatrices of said two cylindrical lenses are orthogonal to each other and are parallel to fast axis and slow axis of said diode array, respectively.
14. wherein said coupling system being a fiber bundle."

Zhang discloses various configurations of focusing pump light into the laser slab including using lenses and lens duct or fiber bundles [3, 6, 13, 17, 18, 22, 23 and 26]. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of '997 into the device of '061 by using lenses and lens ducts or fiber bundle to couple light into the gain medium for at least the purpose better focusing the pump light into the laser slab.

Art Unit: 2828

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Info

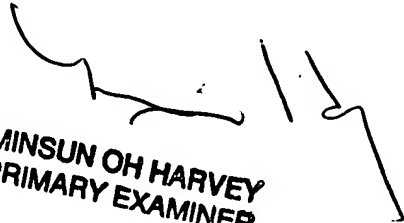
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcia A. Golub whose telephone number is 571-272-8602. The examiner can normally be reached on M-F 9-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marcia A. Golub
Assistant Examiner
Art Unit 2828

MAG


**MINSUN OH HARVEY
PRIMARY EXAMINER**